

Abstract

A method of selectively treating microbiological pathogens which are implicated in the advancement of periodontitis is disclosed. Preferably, the microbiological pathogens are phorphyromonas gingivalis (*Pg*) and prevotella intermedia (*Pi*) which are known to colonize in dental plaque, cementum, gingival sulcus epithelium and surrounding periodontal tissues. The microbiological pathogens can also include pigmented fungi such as Histoplasma and Aspирgillus Niger. The microbiological pathogens are selectively irradiated with high-energy antiseptic laser pulses which are strongly absorbed by the microbiological pathogens and which are substantially transparent to the periodontal tissues. Preferably, high-energy antiseptic laser pulses eradicate a portion of the microbiological pathogens within the periodontal tissues without requiring aggressive debridement procedures.